



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**  
**REGION 10**  
**OREGON OPERATIONS OFFICE**  
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February 15, 2008

Mr. Jim McKenna  
Port of Portland & Co-Chairman, Lower Willamette Group  
121 NW Everett  
Portland, Oregon 97209

Mr. Robert Wyatt  
Northwest Natural & Co-Chairman, Lower Willamette Group  
220 Northwest Second Avenue  
Portland, Oregon 97209

Re: Portland Harbor Superfund Site; Administrative Order on Consent for Remedial Investigation and Feasibility Study; Docket No. CERCLA-10-2001-0240.  
Comprehensive Round 2 Site Characterization and Data Gaps Analysis Report – Problem Formulation for the Ecological Risk Assessment

Dear Messrs. Wyatt and McKenna:

EPA has previously submitted comments on Sections 1 through 9 and Appendices A, B, C, D, F and G of the Comprehensive Round 2 Site Characterization and Data Gaps Report (Round 2 Report). These comments were transmitted to the Lower Willamette Group (LWG) on January 15, 2008. As we have discussed previously, EPA does not expect to provide formal approval or require that the Round 2 Report be revised and re-submitted. Rather, EPA is providing comments on the Round 2 Report to guide the development of approvable RI and Baseline Risk Assessment (BRA) Reports. Toward that end, EPA has developed a Problem Formulation for the Ecological Risk Assessment to guide the development of the baseline ecological risk assessment.

The attached problem formulation is based primarily on information presented in the Portland Harbor RI/FS Programmatic Work Plan, EPA's December 2, 2005 Identification of Round 3 Data Gaps Memorandum and Appendix G of the Round 2 Report. Fundamentally, the problem formulation builds off the assessment and measurement endpoint table (AE/ME Table) presented in the Portland Harbor RI/FS Programmatic Work Plan. A refined version of this table was presented in EPA's December 2, 2005 Identification of Round 3 Data Gaps Memorandum. Discussions that took place during 2006 resulted in an agreed upon AE/ME Table as presented in the Round 2 Report.

Although the approved programmatic work plan for the Portland Harbor RI/FS (April 2004) included a work plan for the ecological risk assessment (Appendix B), there were many elements of the ecological risk assessment had not been finalized and agreed upon. The shared expectation of EPA and the LWG was that through a series of technical memoranda, the details of the ecological risk assessment would be agreed upon. With the exception of a final comprehensive ecological risk assessment technical memorandum, all the expected technical memorandums related to the ecological risk assessment have been submitted and commented on by EPA. In addition, EPA and the LWG engaged in a series of “Framework Discussions” during 2006 culminating with the preliminary ecological risk assessment presented as Appendix G to the Round 2 Report.

EPA is generally in agreement with the ME/AE Table as presented in the Round 2 Report and many other elements of the ecological risk assessment. However, due to the complexity of the ecological risk assessment, many of the details regarding how the ecological risk assessment still remain unresolved and it is unclear whether there is full agreement between EPA and the LWG regarding how the Portland Harbor baseline ecological risk assessment (BERA) will be performed. This includes reaching agreement on the Conceptual Site Model which identifies the key exposure pathways that will be evaluated in the BERA, reaching agreement on the risk characterization – in particular for the evaluation of benthic risk through sediment bioassays or prediction of sediment toxicity, reaching agreement of the scale over which various ecological receptors will be assessed and reaching agreement on how the various lines of evidence for assessing ecological risk will be weighted.

The attached problem formulation has provided specificity on most, but not all, elements of the ecological risk assessment. The greatest specificity is provided for those elements that EPA and the LWG have previously discussed at length. For those elements where substantial discussion has taken place, EPA feels it is appropriate be directive in our comments. For other elements, EPA recognizes that it will be useful for EPA and the LWG to come to agreement in a collaborative manner. A summary of each element is provided below:

- Refined Screen: EPA has provided guidance on the refined screen in the attached Problem Formulation. EPA recommends further discussion on the refined screen along with the submittal of an interim deliverable – refined screen for the baseline risk assessment - prior to development of the full baseline risk assessment. This will allow us to reach agreement on the chemicals to be evaluated in the BERA.
- Refined CSM: EPA and the LWG have discussed the CSM previously. The CSM is generally consistent with the CSM that EPA delivered to the LWG in December 2005. EPA does not believe further discussion on the CSM is necessary and thus directs the LWG to use the attached CSM.
- Assessment and Measurement Endpoints: As stated above, the Assessment and Measurement Endpoint Table has generally been agreed upon by EPA and the LWG. EPA does not believe further discussion on the Assessment and Measurement Endpoint

Table is necessary and thus directs the LWG to use the attached Assessment and Measurement Endpoint Table.

- Risk Hypotheses: A total of 13 assessment endpoints have been identified based on the assessment and measurement endpoints. EPA and the LWG are in general agreement on the assessment and measurement endpoints. As a result, EPA does not believe further discussion on the risk hypotheses is necessary and thus directs the LWG to EPA directs the LWG to perform the baseline ecological risk assessment based on the 13 assessment endpoints described in the problem formulation.
- Exposure Assessment: EPA has presented the exposure parameters in a table attached to the problem formulation. EPA has refined the exposure parameters for some receptors (e.g., certain wildlife receptors). EPA believes that it would be helpful and appropriate to discuss and reach agreement on the exposure assessment.
- Effects Assessment: EPA will be providing direction on the effects assessment in the near future. Our current estimate is on or about March 15, 2008.
- Risk Characterization Methods: The risk characterization methods described are generally consistent with the risk characterization presented in Appendix G. However, EPA has refined the dietary evaluation of fish and wildlife. As a result, EPA believes that it would be helpful and appropriate to discuss and reach agreement on the risk characterization procedures outlined in the problem formulation.
- Weight of Evidence Framework: EPA and the LWG have discussed the weight of evidence (WOE) framework previously. However, the WOE approach presented in the attached problem formulation is a semi-quantitative approach that represents an evolution of our thinking on the WOE. EPA believes that it would be helpful and appropriate to discuss and reach agreement on the WOE.
- Uncertainty Analysis: EPA has provided a general approach to the uncertainty analysis. EPA believes that further discussion is required to reach agreement on how the uncertainty analysis will be performed.

#### Next Steps:

EPA understands that all Round 3 Data to be used for the draft RI and baseline risk assessment will be received and validated by June 1, 2008. At this time, full preparation of the draft RI and baseline risk assessment reports will begin. EPA recommends a series of small, focused technical discussions to discuss specific elements of the attached problem formulation with a goal of reaching agreement on the ecological risk assessment procedures in May 2008. EPA believes that the attached problem formulation represents a significant milestone for the Portland Harbor project and will lead to agreement about how to assess risk to ecological receptors in the BERA. EPA looks forward to discussing this important element of the BERA with you and your technical team.

If you have any questions, please contact Chip Humphrey at (503) 326-2678 or Eric Blischke (503) 326-4006. All legal inquiries should be directed to Lori Cora at (206) 553-1115.

Sincerely,

Chip Humphrey  
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Remedial Project Managers

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